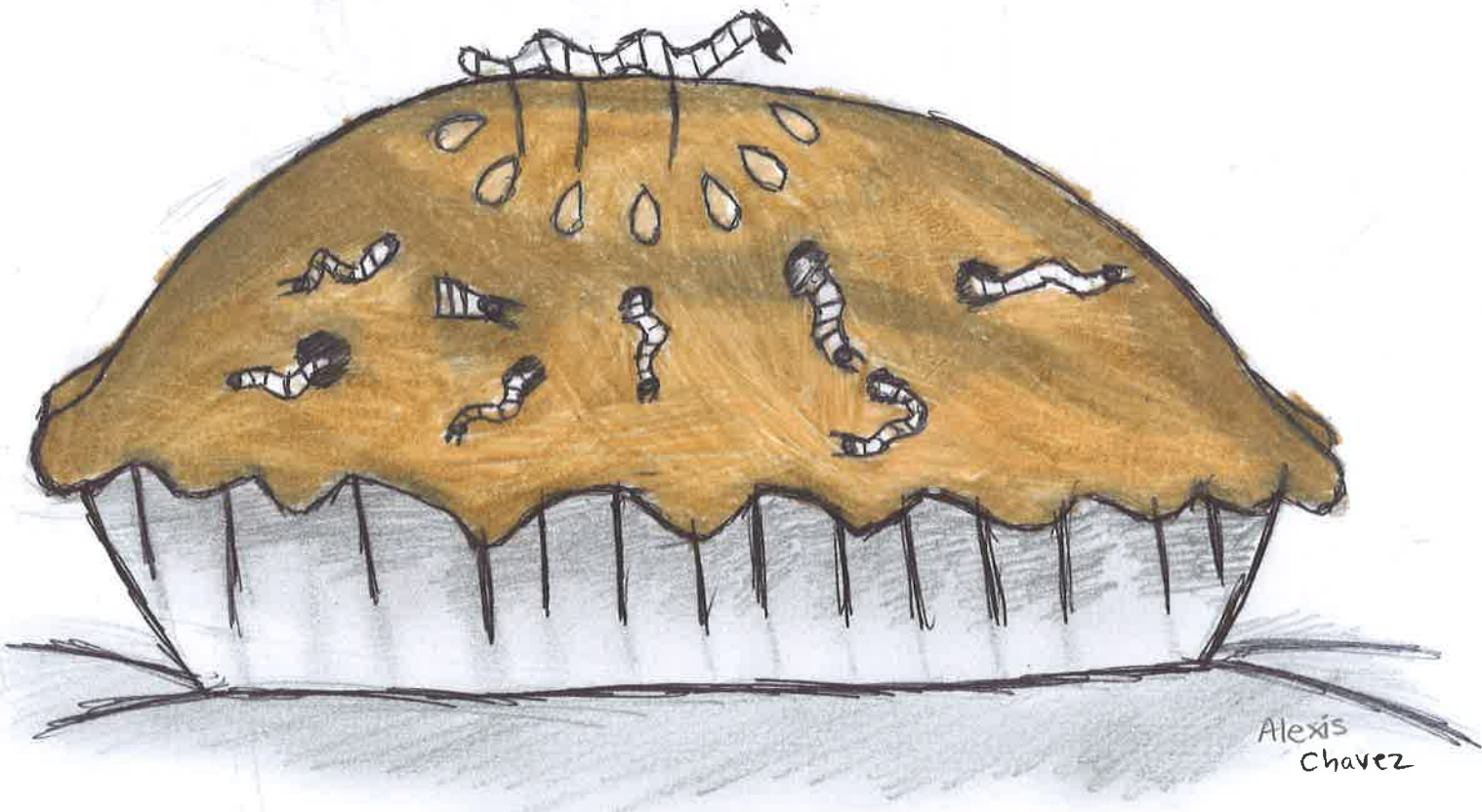


The Mealworm Cookbook



Recipes and Illustrations by Mrs. Delia Ayala's 6th grade
science students

Curren School, Oxnard CA





This book was written and illustrated by students from Mrs. Delia Ayala's 6th grade science classes as part of the California State University Channel Islands Junior Scientist Project, in collaboration with Oxnard School District, the Ventura County STEM Network and the Amgen Foundation.

About the Project:

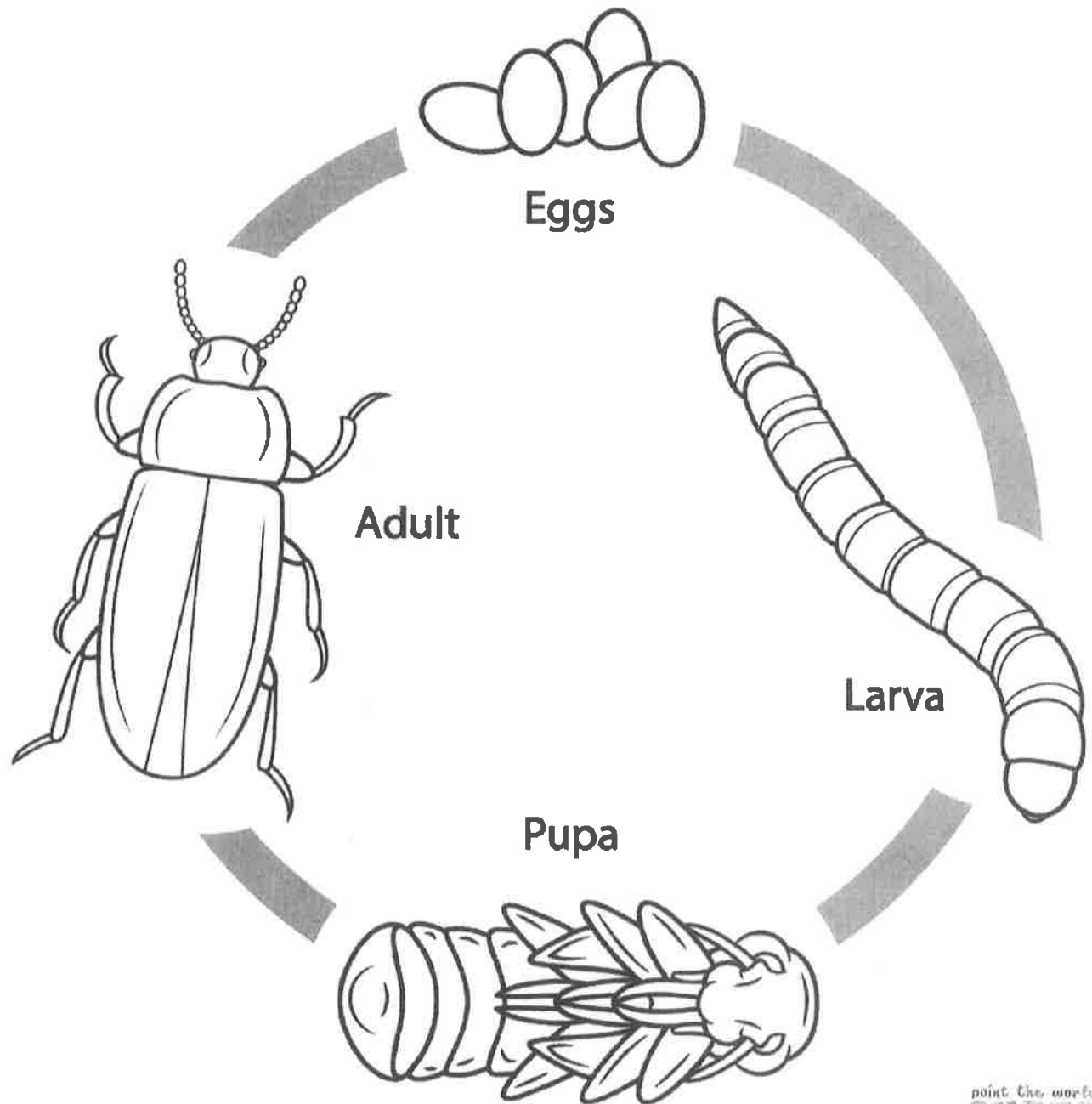
6th grade students in Mrs. Ayala's classroom at Curren School learned about edible insects as a sustainable food source by raising mealworms in their classroom. Under the guidance of CSUCI student Angelica Morales-Moraga and Professor Ruben Alarcon, the Curren students asked questions, then designed and conducted experiments with the mealworms. The experiments included:

- Raising mealworms in varying temperatures to see how it would affect the mealworms' growth (related to climate change).
- Testing different water sources (such as pumpkins and grapes) to see how it would affect the mealworms' growth.

As part of the project, students measured and weighed the insects regularly, and recorded their data. At the end of the project, the students analyzed their results and presented their findings. The project also included a mealworm tasting.

A special thank you to Mrs. Delia Ayala; the 6th grade science students at Curren School; CSUCI Professor Phil Hampton; CSUCI Professor Ruben Alarcon; CSUCI student Angelica Morales-Moraga; CSUCI; Oxnard School District; Curren School; the Ventura County STEM Network; and the Amgen Foundation for making this project possible.

Life Cycle of a Mealworm

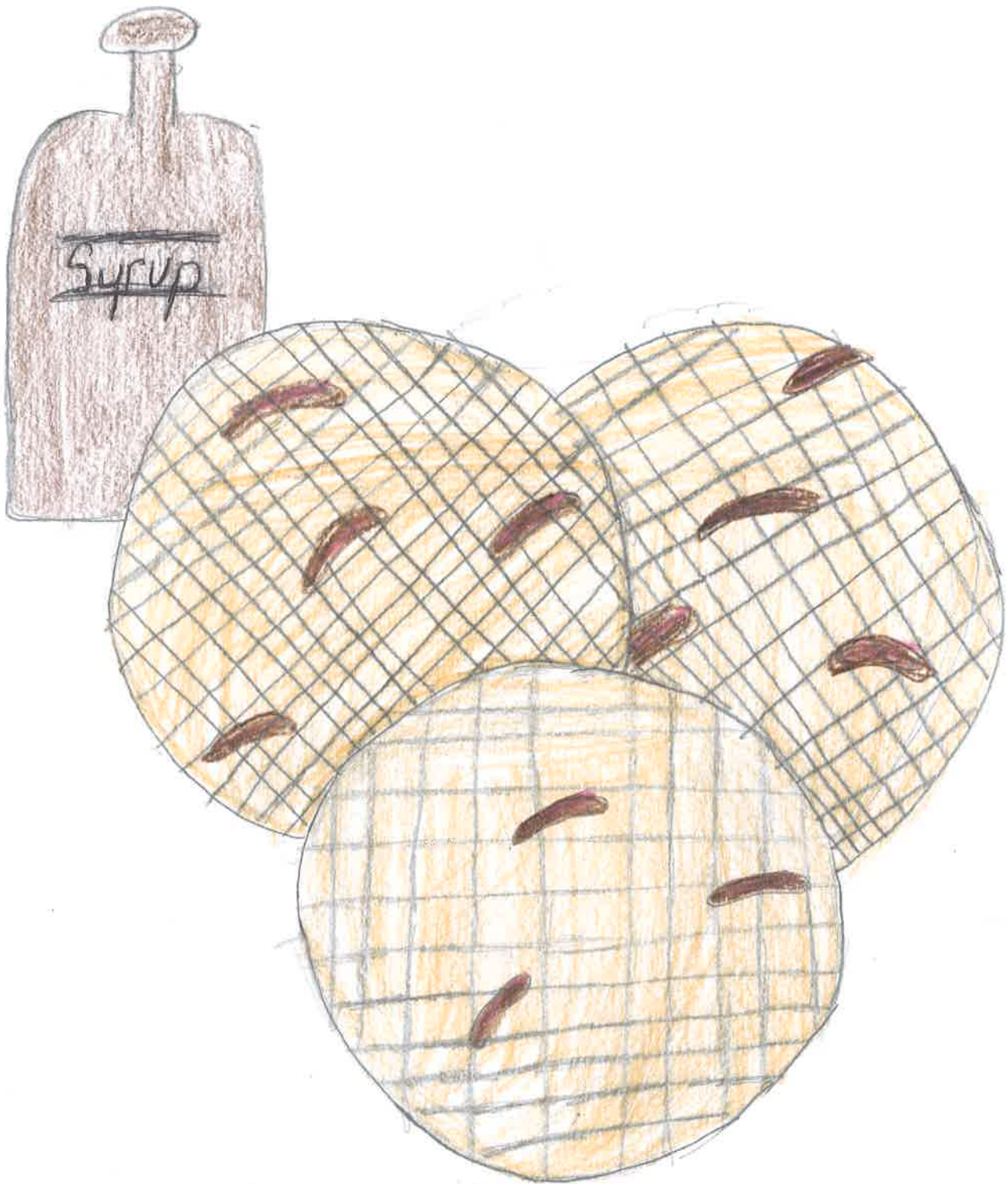


point the world
SUPER
COLORING



Breakfast

Xifali
Ramirez



RECIPE: Waffles w/ mealworms

FROM: Xitlali Ramirez



INGREDIENTS:

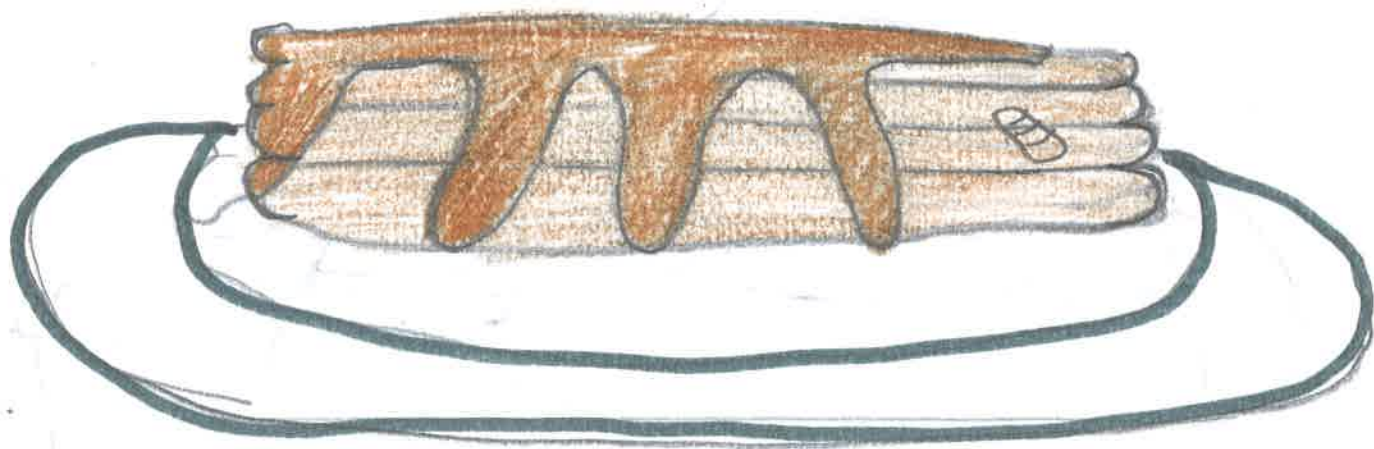
<u>2 eggs</u>	<u>1 tablespoon white sugar</u>
<u>2 cups all-purpose flour</u>	<u>4 teaspoons baking powder</u>
<u>$1\frac{3}{4}$ cups of milk</u>	<u>$\frac{1}{4}$ teaspoon salt</u>
<u>$\frac{1}{2}$ cup vegetable oil</u>	<u>$\frac{1}{2}$ teaspoon vanilla extract</u>

DIRECTIONS: Preheat the waffle iron.

Beat the eggs in a large bowl with a hand beater until it's fluffy. Beat in the flour, baking powder, salt and vanilla, just until smooth. Spray preheat waffle iron with non-stick cooking spray. Pour mix onto hot waffle iron. Add the mealworms

Cook until it's golden
brown. Serve hot.





RECIPE:

Pancakes

FROM:

Toni Simpson



INGREDIENTS:

1 $\frac{1}{4}$ cup of water

1 $\frac{1}{4}$ cup flour

2 table spoon sugar

2 teaspoons baking powder

$\frac{1}{2}$ tsp of salt

1 tbs oil (margarine)

DIRECTIONS:

Sift flour, sugar, baking powder, and salt. Whisk the water and oil together in a small bowl. Make a well in the center of dry ingredients, pour in wet ingredients, stir until blended. Heat a lightly oiled griddle over medium-high heat. Drop batter by large spoonfuls onto griddle and cook until bubbles form and edges are dry flip and repeat.

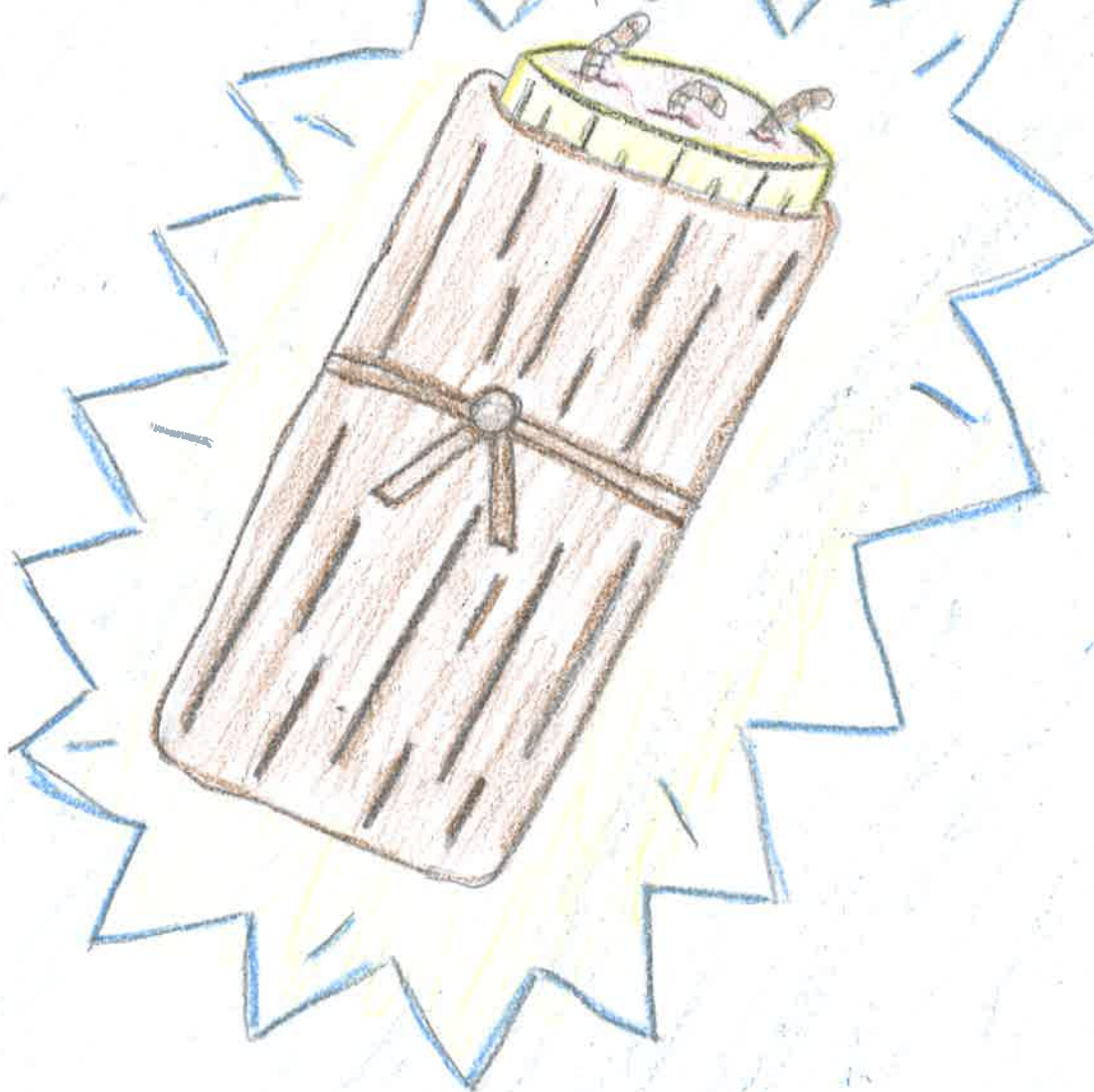


Dinner

Mealworm and Mole



Tamales



RECIPE:

Mealworm and Mole
Tamales

FROM:

Melanie Placerencia



INGREDIENTS:

2 cups of water

1 cup of Mealworms

6 dozen Corn Husks

10 pounds of dough

1 1/4 cups of Mole

DIRECTIONS:

Open the corn husk
and spread 7.2 pounds of dough
on it. Then put 1/2 of mealworms
and some of the mole.

Keep doing this until
you have all the tamales
you need. For more
flavor, you can add

a teaspoon of salt
to them. Add 2 cups
of water to large
pot and preheat your
oven to 325° degrees.
Close your tamales and
put them in the pot
from $4\frac{1}{2}$ to 6 hours.
When ready, serve
and enjoy!





Tacos dorados con mealworms,

"Your Tacos is Served."

Why its Good meat

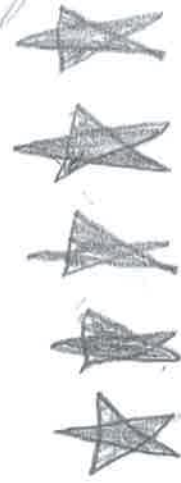
• No Meat

• ~~It's very good~~

• Good Taste



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RECIPE:Tacos Dorados con mealworms**FROM:**Chef Emiliano**INGREDIENTS:**Oil 1/3-1/28-10 Tortillascheese 1 1/2mealworms2 Roma Tomatoes1/2 cup Sourcream1-2 limes4 cups Lettuce1/3 cup red onion**DIRECTIONS:**First Put oilin a large frying Pan. Fry tacosuntil golden and crispy for 1-3minutes Per side. Second you Putmealworms in a different Panand cook them After that you Putthe mealworms in the crispy tortilla.Third Put in different spices like

Lettuce, tomato, onion, hot sauce,
cheese and sour cream.





RECIPE: Tacos

FROM: Edward Maruffo



INGREDIENTS: 1 Pound ground beef (80%)

1 tablespoon Chili Powder

1/2 teaspoon Cumin

1/2 teaspoon Salt

1/2 teaspoon Dried Oregano

1/4 teaspoon Garlic Powder

1/4 teaspoon Onion Powder

1/2 cup tomato sauce

DIRECTIONS: Step 1 Heat Taco shells

as directed on box. Step 2 In 10-inch

nonstick skillet cook beef over medium

high heat 5 to 7 minutes stirring frequently

until thoroughly cooked drain. Stir in

water and taco seasoning mix heat to

boiling. Reduce heat simmer uncovered 3 to 4

minutes, stirring frequently, until thickened.

Taco Worms



TACO
Worms!

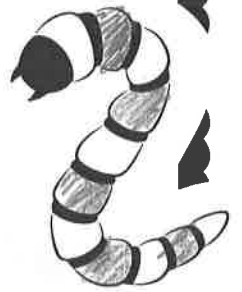


Delicious!

1.7K 43.

RECIPE: Taco Worms

FROM: Aaron Torres



INGREDIENTS:

^{1 tsp} Smoked paprika

Mealworms

1/2 cup tomato sauce

Shredded cheese

Tortillas

1 tablespoon Chili Powder

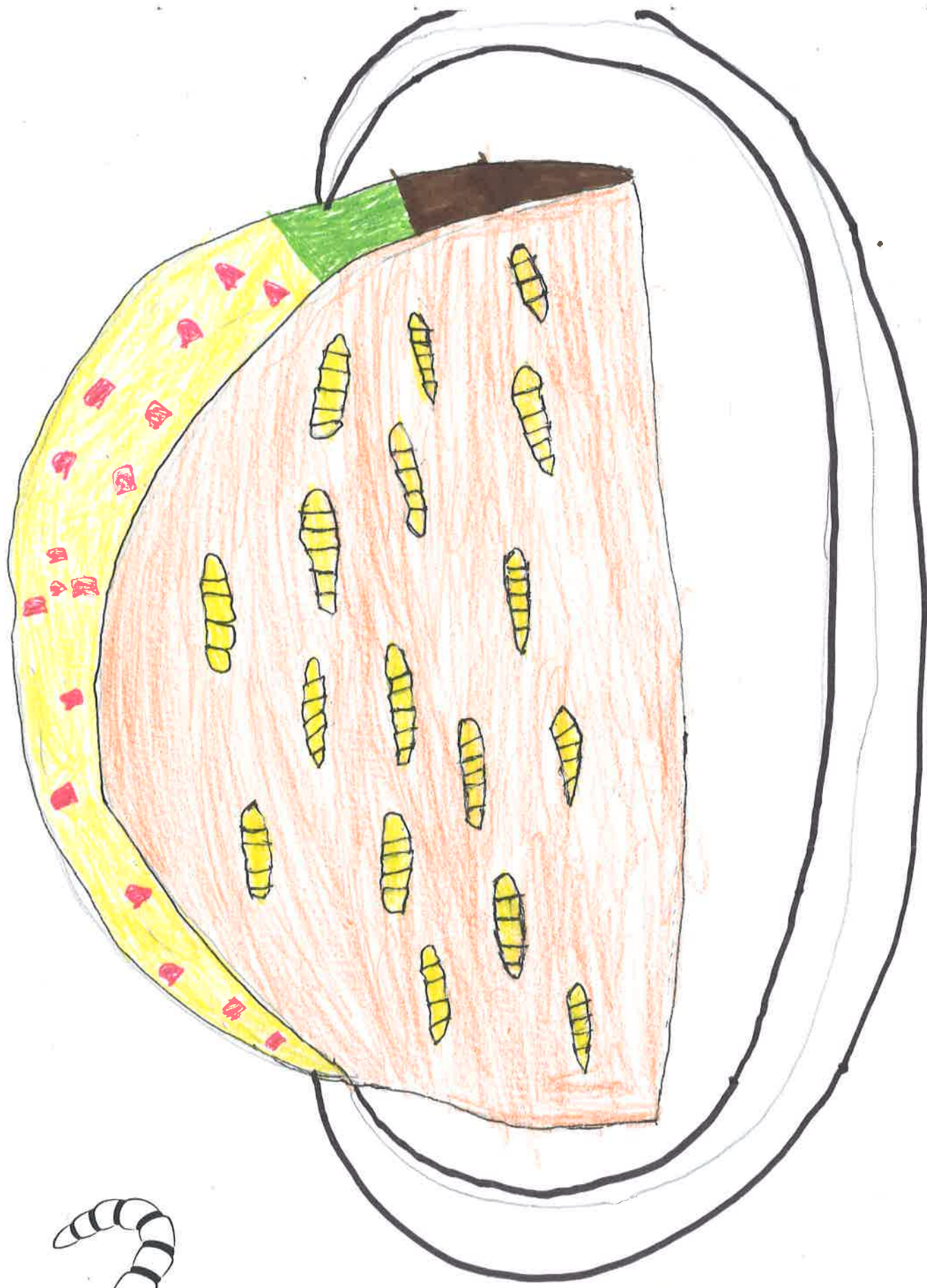
1 pound Ground Beef

Silantro

1/2 teaspoon Salt

DIRECTIONS:

Put a tortilla on a plate.
Then you place 1 pound of Ground Beef.
After place silantro near the Beef and put
Some Mealworms inside the Beef. Next
you shred some cheese and 1 tsp Smoked
Paprika and 1/2 cup of tomato sauce. And
for the last touches, you add 1 tablespoon of
Chili Powder and 1/2 teaspoon of salt.



Mealworm Taco

RECIPE: Mealworm Taco

FROM: Jorge Alfaro

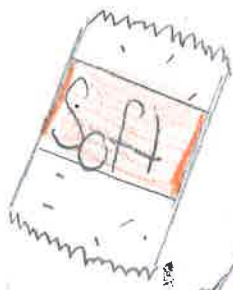
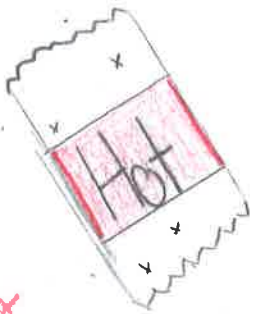


INGREDIENTS:

<u>2 teaspoons dried minced</u>	<u>onion, 1 teaspoon salt,</u>
<u>1 teaspoon chili powder,</u>	<u>$\frac{1}{2}$ teaspoon cornstarch, $\frac{1}{2}$</u>
<u>teaspoon ground cumin, $\frac{1}{2}$ teaspoon</u>	<u>red pepper flake, $\frac{1}{2}$ teaspoon</u>
<u>dried minced garlic, $\frac{1}{4}$ teaspoon</u>	<u>dried oregano, 1 pound ground</u>
<u>beef, $\frac{1}{2}$ cup of mealworms.</u>	

DIRECTIONS: First, get mix minced onions, salt, chili
powder, cornstarch, cumin, red pepper flakes, cayenne pepper, dried minced
garlic, and oregano in bowl. Second, heat a large skillet over
medium-high heat. Crumble ground beef into the hot skillet. Cook
and stir until the beef is completely browned, 7 to 10 minutes.
Drain and discard any excess grease. Third, return ground beef
to heat. Pour seasoning mixture and water over the beef; stir to
combine. Bring to a simmer and cook until the moisture absorbs into
the meat, about 5 minutes.

Meal talk



Meal
worm



RECIPE:

Meal talk

FROM:

Isabella Vigil



INGREDIENTS:

1 medium tomato chopped
1 pound of ground beef 1 cup shredded Cheddar
1 cup old El Paso Cheese (4 ounces)
10 taco shells
1/2 Shredded lettuce

DIRECTIONS:

1) Cook beef in 10-inch skillet over
medium heat stirring occasionally, until
brown; drain. 2) Stir Salsa into beef.
Heat to boiling, stirring constantly; reduce
heat to medium-low. Cook 5 minutes,
stirring occasionally. Pour beef
mixture into large serving bowl.

3) Heat taco shells as directed
on package. Serve taco shells
with beef mixture, lettuce, tomato
and cheese.





Tawormsi.

RECIPE: Ta worms

FROM: Valeria Alvarez



INGREDIENTS:

<u>1 Pound Lean (at least 80%)</u>	<u>Taco shells 1/2 head lettuce,</u>
<u>Ground Beef 1 cup Old el</u>	<u>shredded 1 medium tomato,</u>
<u>Paso Fin Thicken chunky</u>	<u>shredded (3/4 cup) 1</u>
<u>Salsa 10 Old el Paso Fin</u>	<u>cup shredded cheddar</u>
	<u>cheese (4 ounces).</u>
	<u>2 cups mealworms</u>

DIRECTIONS:

Step 1 Cook Beef in 10 inch
Skillet over medium heat 8 to 10 minutes, stirring
occasionally, until Brown; drain. Step 2 Heat taco
shells as directed on Package. Serve taco
shells with Beef and The cup of mealworms
mixture, lettuce, tomato and cheese.

Sopes with mealworms 😊

Mealworms



RECIPE: Sopes with mealworms

FROM: Jamie Padilla



INGREDIENTS: 1. 1-1/2 cup of masa

2. 1-1/4 cup of warm water 3. 4 tablespoons of

3. vegetable oil or lard

4. 2 cups of lettuce-

4. (finely shredded

5. 1/2 cup of

5. mealworms

DIRECTIONS: ~~Mix~~ Mix masa harina

and warm water in a medium-size

bowl, knead the dough until you have a

uniform texture. If the dough feels dry,

add more water, little by little, spoon by spoon,

until the dough is soft and

manageable, like play dough. It doesn't

have to be sticky. Now, cover the dough

with a wet kitchen towel,
this will help to keep the
dough moist. Always keep a
small bowl of water next to
your working area to keep your hands
and dough moisten. Divide the dough
into 10 pieces of the same size, cover
with the kitchen towel. Heat the
griddle over medium-high heat. To
form the sopes, cut the plastic bag
into 2 squares of about 6-14 each.
Place one piece of plastic on the
Tortilla press, then put down one of
the small balls of dough and cover
with the other piece of plastic, close
the tortillera and press down gently
with the tortilla press handle until



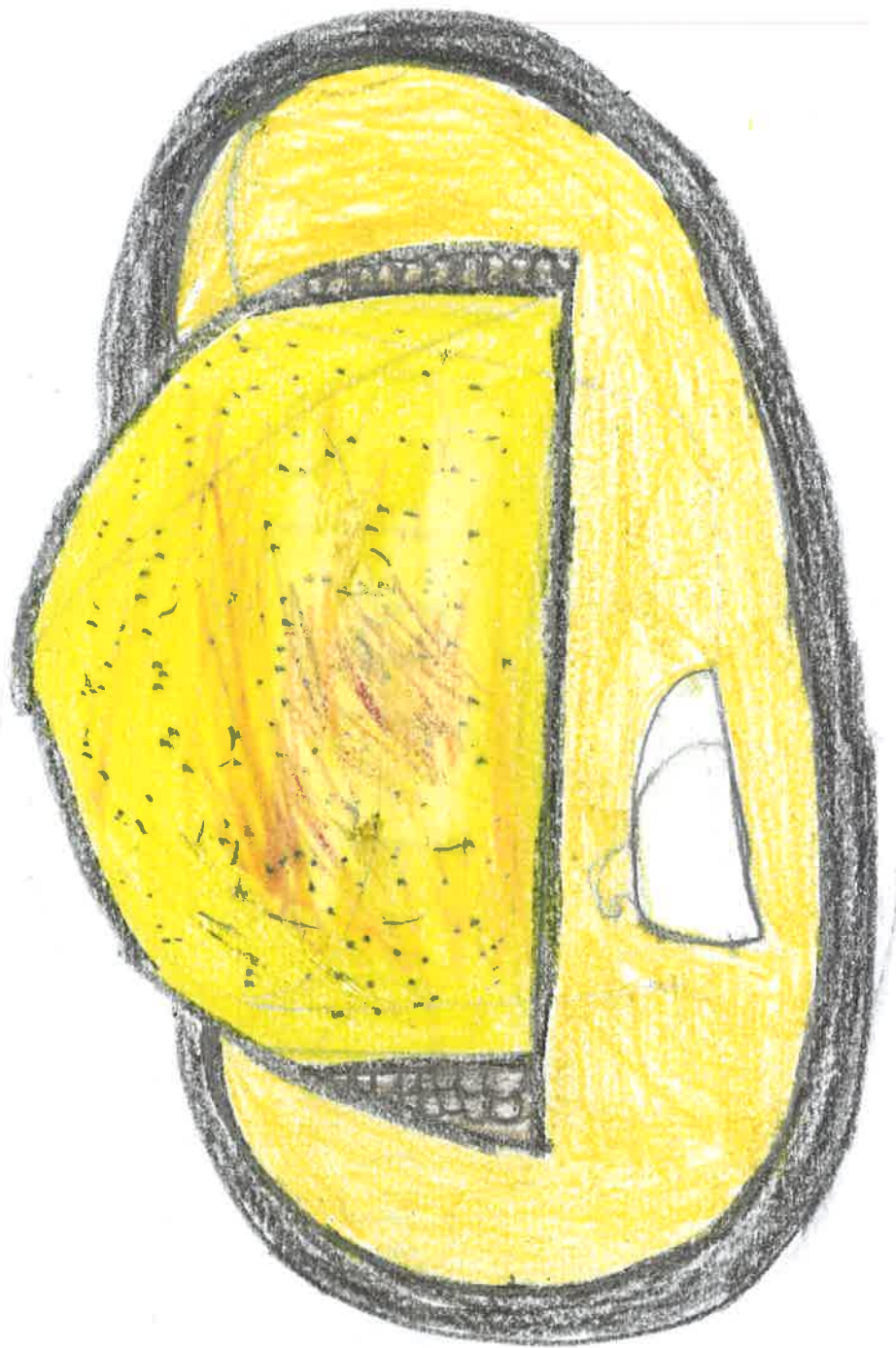
you form a medium size
thick tortilla. Lift the handle and
remove the top plastic. Pick up
the tortilla, holding with the plastic
at the bottom, gently flip the tortilla
to onto the palm of your hand.
A large part of the tortilla will
cover your hand, Cif you dont have
a Tortilla press, use a glass pie dish
to press down on the dough.
Place the tortilla on the hot griddle/
comal, this is a fast but gentle
move. Turn the tortilla after a minute,
dont let it cook longer or the dough
will dry and crack. Turn again after
a minute, and the last cooking
will take about 20-30 seconds



Remove from griddle with the help of a spatula. Cover the tortilla with a dry kitchen towel and allow to cool for about 30-45 seconds, and start forming the border pinching the edges with your fingers. ~~Now~~ Now, the tortilla had become sopes, cover again with the kitchen towel and keep cooking the rest of the sopes.



Wormdilla



RECIPE: wormdilla

FROM: Melani Garcia



INGREDIENTS: PAM Original No-

4 Flour tortillas

(8 inch), 2 Cups

Shredded Cheddar or

Monterey Jack

Cheese (2 cups = 8 oz)

Stick Cooking Spray

Blue cheese dressing,

optinal, Meal worms

DIRECTIONS: Prepare Meal worms

Sprinkle half one tortilla with 1/4 cup

Cheese. Top with 5 hot tenders and

another 1/4 cup cheese. Fold tortilla in

half over filling. Repeat with remaining

ingredients. Spray large skillet with

cooking spray; heat over medium heat.

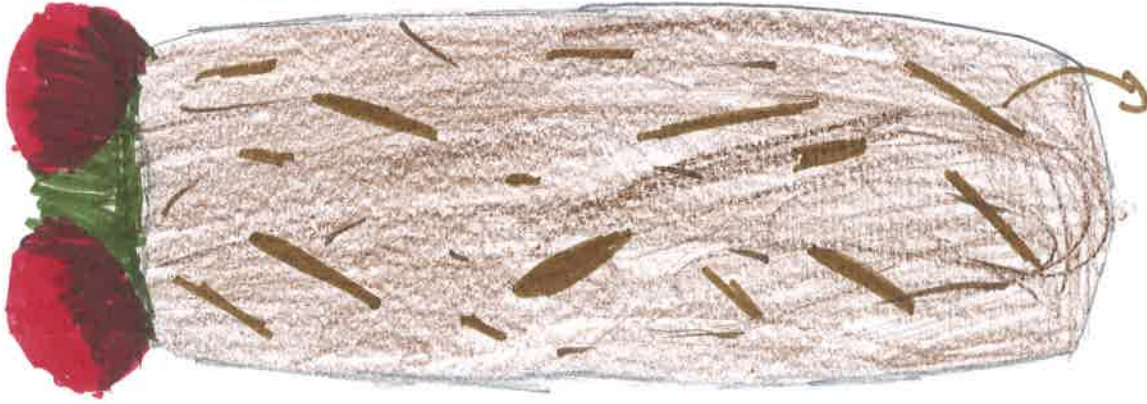
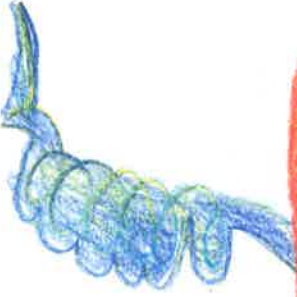
Add each quesadilla and cook about 1

minute per side or until tortilla is golden brown

and cheese melts. Cut quesadillas into wedges. serve
with blue dressing, if desired.

Protein Wrap w/mealworms

\$5.99



mealworms

Strawberry-Peach
Juice w/reusable
Straw



Mealworm



Wrap

RECIPE:

Mealworm Wrap

FROM:

Crystal Solomon



INGREDIENTS:

2 cups of shredded romaine

2 cups of mealworms

1 large tomato, diced

Salt & Pepper

2 tbl. of lime juice

1/2 cup of avocado

DIRECTIONS:

Place mealworms in a large bowl and season with salt and pepper.

Remove the skin and pit from the avocado and place in another bowl. Mash the avocado,

then season with salt and pepper. Lay a tortilla

on a work surface and spread 1/4 of the

avocado mixture over the tortilla leaving a 1-inch

border. Layer 1/4 of the lettuce down the center, followed by 1/4 of tomato. Add 3/4 of mealworms

Crystal

Fold in the 2 sides of the tortilla,
then roll up like a burrito.



Repeat with the remaining ingredients
and tortilla.

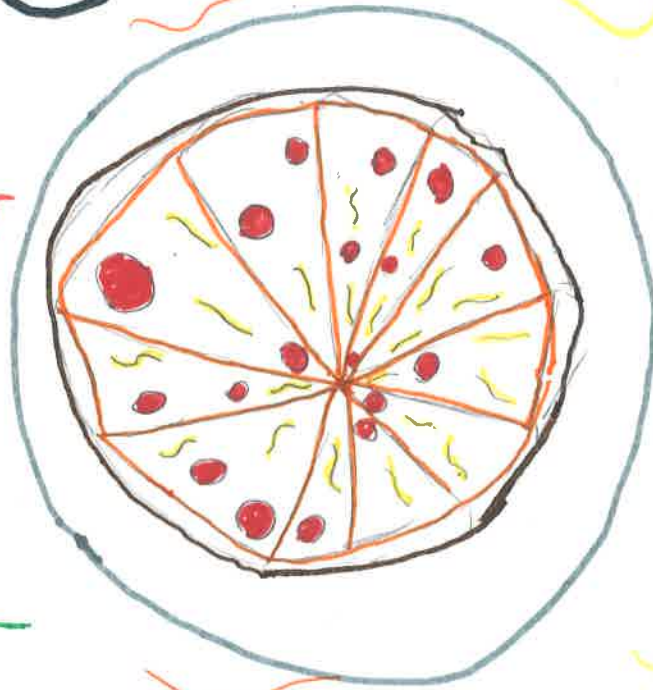
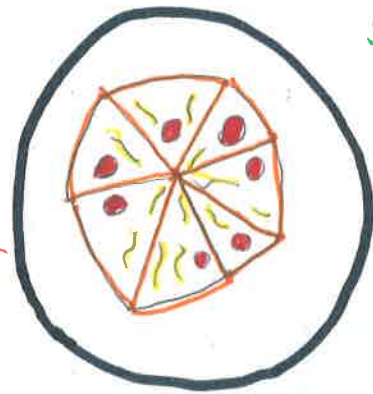
Cut in half before serving.



DonimOS

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or
(805)402-6591



Yum!!

Mealworm

Pizza

-3.99\$

New!

RECIPE: Mealworm pizza

FROM: Miranda Lopez



INGREDIENTS: Dough
Sauce
Cheese
meal worms

DIRECTIONS: The first step is
making dough. In a large bowl pour
yeast and sugar in water and leave it
for 5 minutes. Now add oil and salt
and stir in flour a cup at a time
until the dough forms. Now you can
put the dough on a cutting board or
a surface and roll it until its flat.

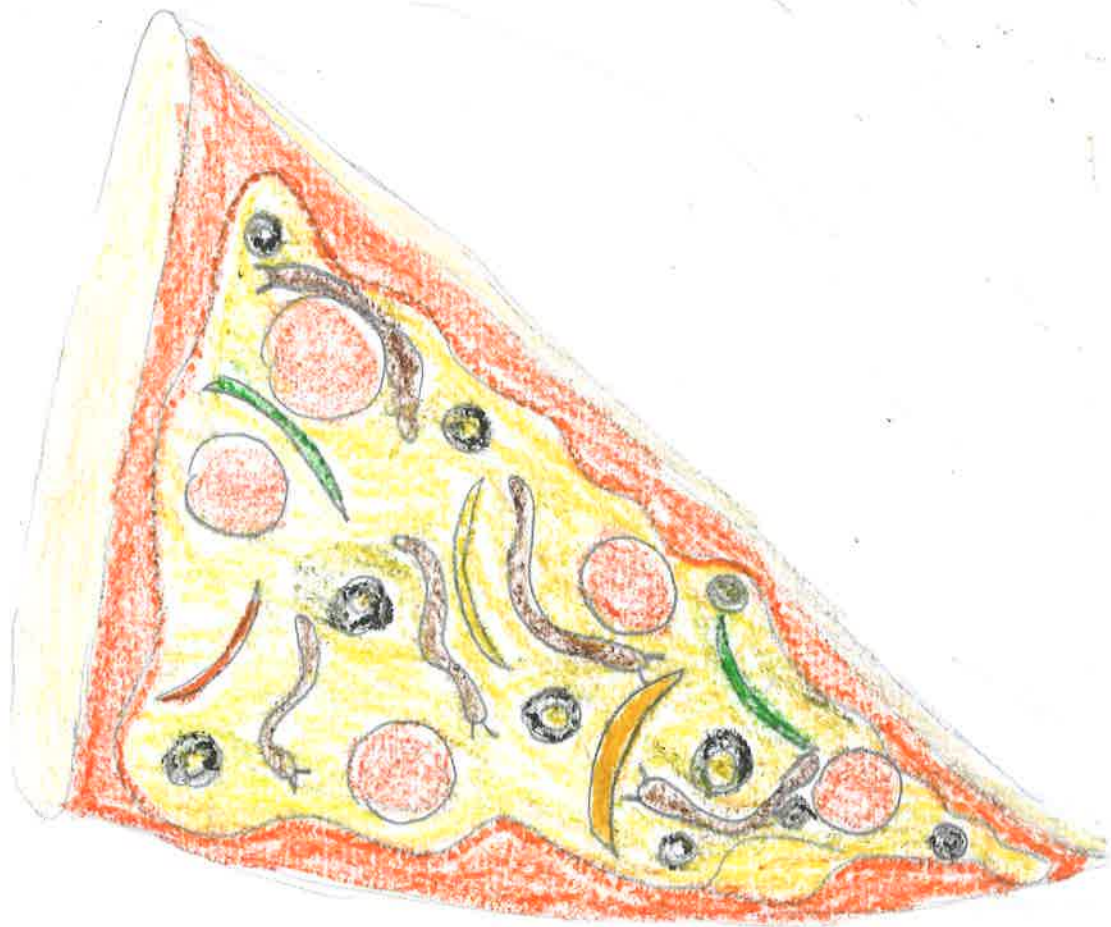
Miranda Lopez

The next step is to put the
dough in the oven and bake
at 400° for 25-30 minutes.

When it's done baking



Mealworm Pizza



RECIPE:

Mealworm Pizza

FROM:

Thimena



INGREDIENTS:

<u>2 1/2 Cups warm water</u>	<u>7 cups all-purpose flour, plus more for dusting</u>
<u>1 teaspoon Sugar</u>	<u>6 tablespoons extra Virgin Olive oil, plus more</u>
<u>2 teaspoon active dry Yeast</u>	<u>1 1/2 teaspoon kosher salt</u>
	<u>1/4 Cup Semolina flour</u>

DIRECTIONS:

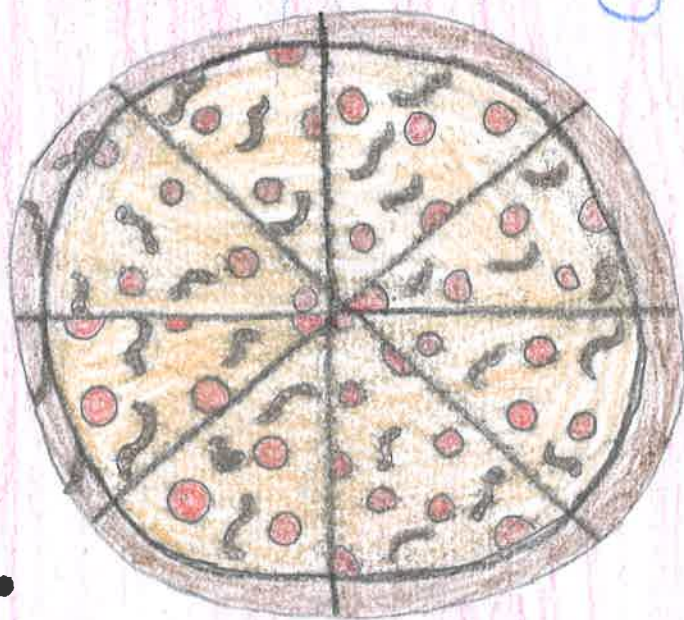
Mealworms
Step 1 In a large
mixg bowl, combine flours and
Salt. Step 2 In a small mixing
bowl, stir together 200 grams (a
little less than 1 cup) lukewarm
tap water, the yeast and the olive
oil, then pour it into flour mixture.
Knead with your hands until well

Jhimena

Combined, approximately 3 minutes, then let the mixture rest for 15 minutes Step 3 Knead rested dough for 3 minutes. Cut into 2 equal pieces and shape



Pizza



Worm

RECIPE: Pizza Worm

FROM: Adriana Fernandez Martinez



INGREDIENTS:

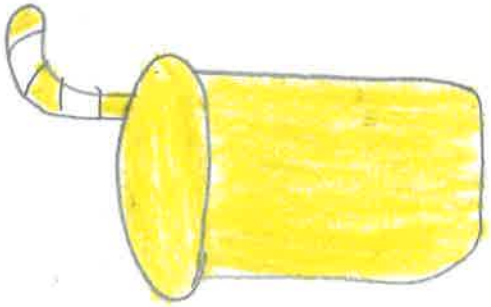
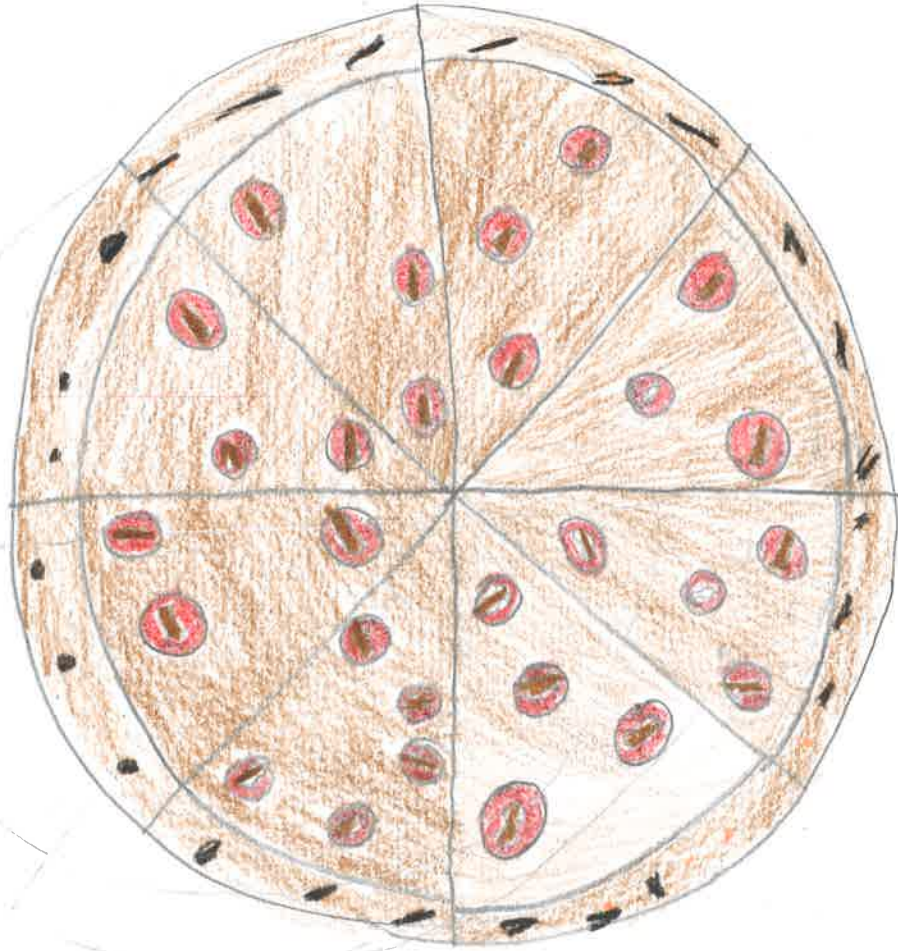
<u>1 ^(355ml)/₂ cups of warm water</u>	<u>3 3/4 cups (490g) bread flour</u>
<u>water (105°F-115°F)</u>	<u>2 Tbsp olive oil (omit if cooking pizza in a wood-fire pizza oven)</u>
<u>1 package of active dry yeast</u>	<u>2 teaspoons salt</u>
<u>(2 1/4 teaspoons) of yeast</u>	<u>1 teaspoon sugar</u>
	<u>2 1/2 cups of mealworm</u>

DIRECTIONS: First, Preheat the oven to 375

degrees F (190 Degrees C). Second, Place the pizza
halves cuts side up onto a baking sheet. Spoon
some of the pizza sauce onto each one. Top with
mozzarella cheese and pepperoni slices. Last
bake for 10 min in the preheated oven, or until
the cheese is melted and browned on the edges.

Pizza

Worm



Lemonade

My name is
[illegible]

RECIPE: Pizza Mealworm

FROM: Alejandro Zamora



INGREDIENTS: 1 oz Black Garlic

1 pinch Chopped Parsley 1 oz Olive Tapenade

2 TSP Grated Parmesan cheese 4 drops of Texas olive oil

1 tsp Puff pastry 1/2 TBSP Goat Cheese

1 tsp ground roasted mealworms 1 pinch of Mealworms

DIRECTIONS: You will need 1 pinch

of Chopped parsley, 2 TSP of Grated
Parmesan Cheese, 1 tsp puff pastry,

1 TSP of ground roasted mealworms,

1 oz Black Garlic and Olive Tapenade,

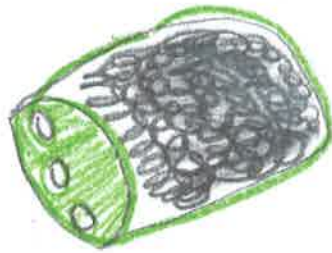
4 drops of Texas Olive oil, 1/2 TBSP

Goat Cheese, 3 in Texas Olives cut half

and at last 1 pinch of mealworms.

MEAL WORM

AFREDO



RECIPE: Mealworm Alfredo

FROM: Alexa Gomez



INGREDIENTS: 1 (17.6-ounce) Sams

choice italia fusilloni pasta. 1 table

spoon, olive oil. 2 boneless chicken

breasts. 3 table spoons unsalted

butter, black pepper. 3 garlic cloves, minced.

2 1/2 tablespoons all-purpose flour.

DIRECTIONS: Get a large pot of

lightly salted water to a boil. Add

fettuccini and cook for 8-10 minutes.

Melt 2 tablespoons butter in large

skillet over medium heat. Then in a

large saucepan combine ricotta

cheese, cream, salt, Parmesan cheese and

remaining butter. Heat chicken, and

then add pepper. Then stir
alfredo sauce in the chicken.

Then add 1 cup of fettuccine.

Also then you add 2 cups of
mealworms. Last you sprinkle cheese
and enjoy your Mealworm Alfredo.



Mealworm

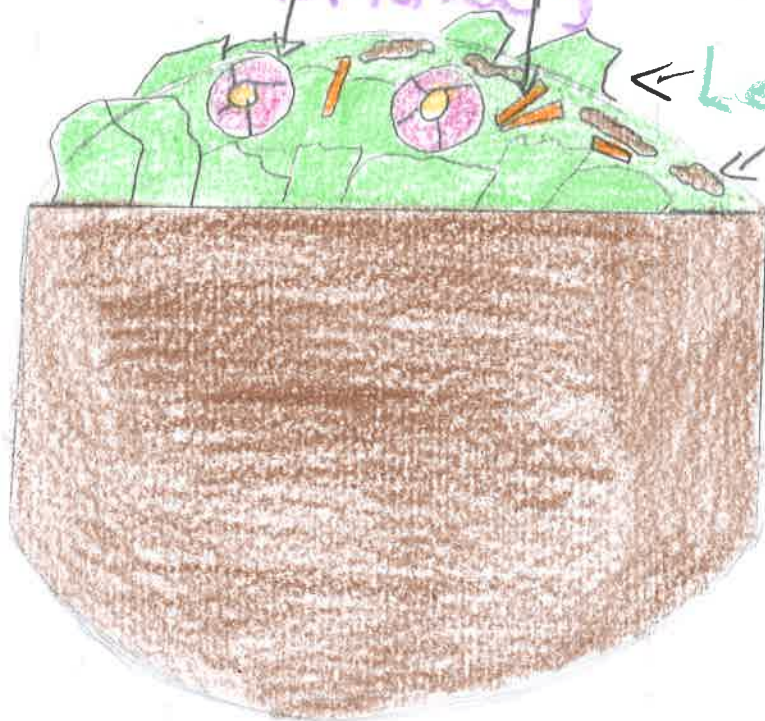


Salad Carrots

Tomatoes

← Lettuce

← mealworms



RECIPE: Mealworm Salad

FROM: Darlene Leon



INGREDIENTS:

Lettuce

Tomatoes

Carrots

Mealworms

DIRECTIONS: Wash vegetables. Cut

lettuce, tomatoes and carrots then add the

vegetables to your bowl. You can add as many

vegetables as you want. Put mealworms

in a plastic bag and put them in the freezer

for about 15 minutes (this will kill the mealworms).

Then spread the mealworms evenly on a

non stick cookie sheet (if you are worried that the

mealworms are going to stick then you can
lightly grease the sheet). Roast them in
the Oven for 10-15 minutes on 90: until they
light and crispy. Be careful mealworms can burn easily.
Take mealworms off the oven and spread them on a
new baking sheet till they cool down then add them to your
Salad.





Mealworm Soup



RECIPE: Mealworm Soup

FROM: Isabella Chavez



INGREDIENTS: Olive oil 2 Tbsp

Mealworm's 60

peper 1/4

Carrots 10

Onions 1

Celery 7

Tomatoes 2

Potatoes 6

Salt 1/2

DIRECTIONS: Heat olive oil in a pot

then add onions, carrots, celery and

tomatoes. Then boil it for 4 minutes

after add you're mealworms. After

you have put your soup in you're

bowl add salt and go ahead and

eat you're mealworm soup.

Murito



RECIPE: Murito

FROM: Fernando Ambriz



INGREDIENTS:

15oz 7 cups 1 pound a comal

7 cups OF mas eca bowl

1/2 cup OF water

1 pound OF meal worms

1 to 1 1/2 spoon OF salt

DIRECTIONS: First you have to get

mas eca and then you pour it into a bowl.

Then you stir with your hands then you turn

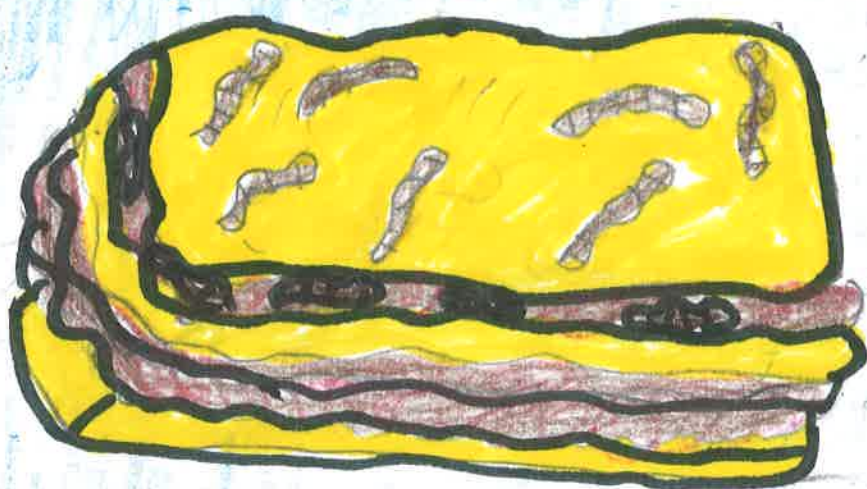
on the stove with a comal. Then, you make

you a ball of masa and you form it with

your hands. Then you put it into the comal

then you warm up the meal worms then

you make the murito.



WORMSAGNA

RECIPE: Mealworm Lasagna

FROM: Diego Godinez



INGREDIENTS: $\frac{3}{4}$ pounds of tomato paste

15 lasagna noodles

1 pound of ground beef

$4\frac{3}{4}$ cups of grated Mozzarella cheese

Dry mealworms

DIRECTIONS: Cook Pasta

on boiling water. Drain the
pasta when it is done.

Cook ground beef. Stir
the tomato paste with the
ground beef. Layer the pasta
ground beef and mealworms.

Layer it $\frac{3}{4}$ times.

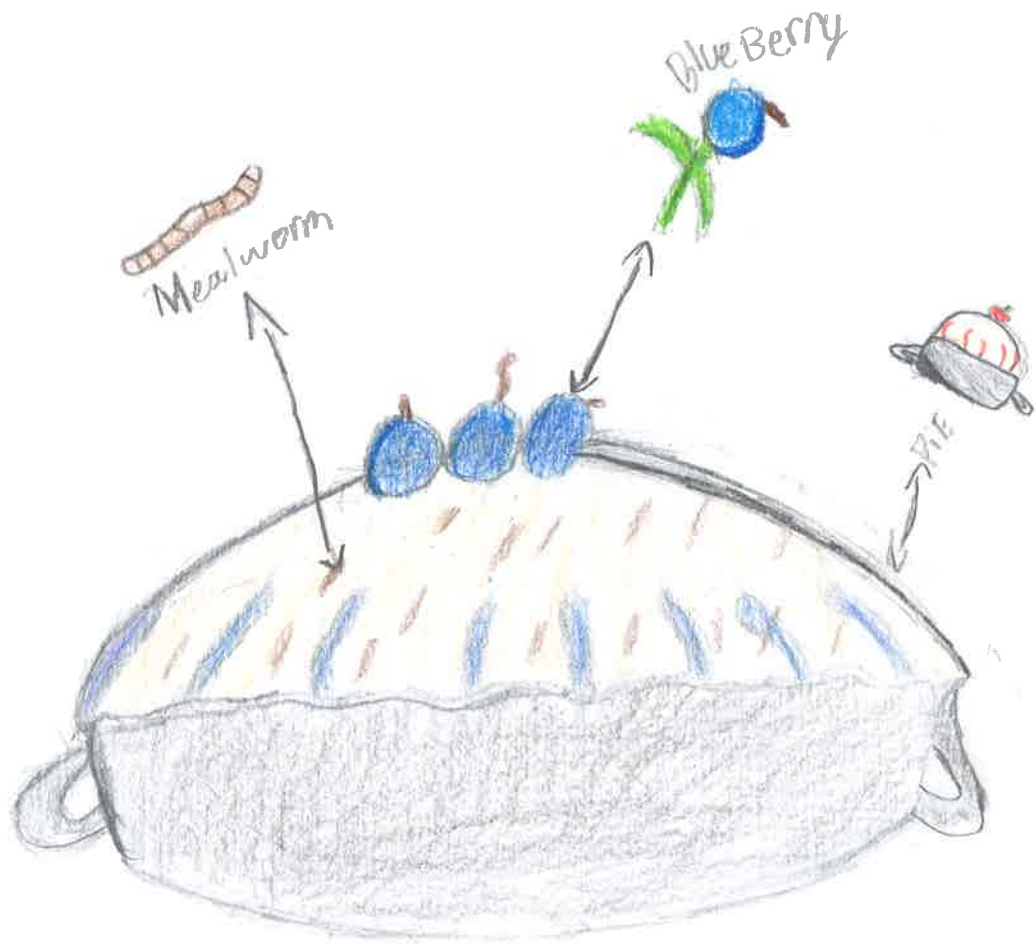
Put the lasagna in your
oven at 375°F for
45 minutes. Then take
out the lasagna and sprinkle
mealworms on the top
and enjoy.





Dessert

Pedro
Cruz



Mealworm pie

RECIPE:

Mealworm Pie

FROM:

Pedro Cruz



INGREDIENTS:

Dough, blueberry's

blueberry's jam

mealworms, and a

pan

DIRECTIONS:

First get the pan and
fill the bottom of the pan with dough.

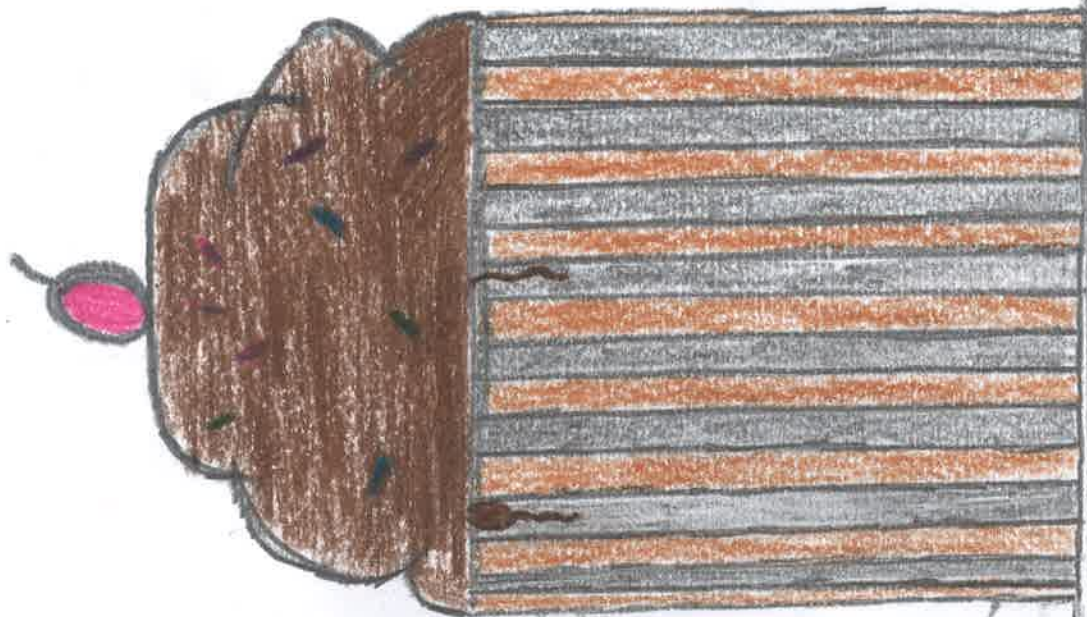
Then fill it with jam. Next cover the

top with dough and bake it on

the oven. Next dising it with

blue berry's and your done





Medworth Ice Cream

RECIPE: Mealworm Ice Cream

FROM: Rigoberto Carballo



INGREDIENTS:

- | | |
|--------------------------------|----------------------------------|
| • <u>Cup holder</u> | • <u>Vanilla Extract (2 1/2)</u> |
| • <u>Sugar / milk / cream</u> | • <u>Fudge (chocolate)</u> |
| <u>mixture (2 cups)</u> | • <u>Ice cream mixture</u> |
| • <u>Whipped cream (1 cup)</u> | • <u>Salt (2 teaspoons)</u> |
| | • <u>Almond milk</u> |

DIRECTIONS: Stir sugar, and rest
of the ingredients. Heat until mix is hot.
Transfer mixture to measuring cup. Stir in
Vanilla Extract and chill mix thoroughly. Pour cold
Ice cream mix into ice cream maker. When
ice cream is softly frozen, serve immediately
or place plastic wrap to ripen 2-3 hours.



Crepe worm!

RECIPE: Crepe worm

FROM: Ana Valeria Reveles



INGREDIENTS:

1 cup all Purpose flour

1 tablespoon sugar

1/2 teaspoon ground

cinnamon

1 1/2 cups milk

2 eggs

1 tablespoon butter

2 cups sliced Strawberries

2 firm bananas, sliced

DIRECTIONS: first step in a mixing bowl

combine flour, sugar, cinnamon, milk and eggs

mix well. cover and refrigerate for 1 hour

second step melt 1 teaspoon of butter. stir

batter. Pour about 2 tablespoons into the center

of skillet. cook 15-20 seconds longer. remove

to a wire rack. Third step spread 2 rounded

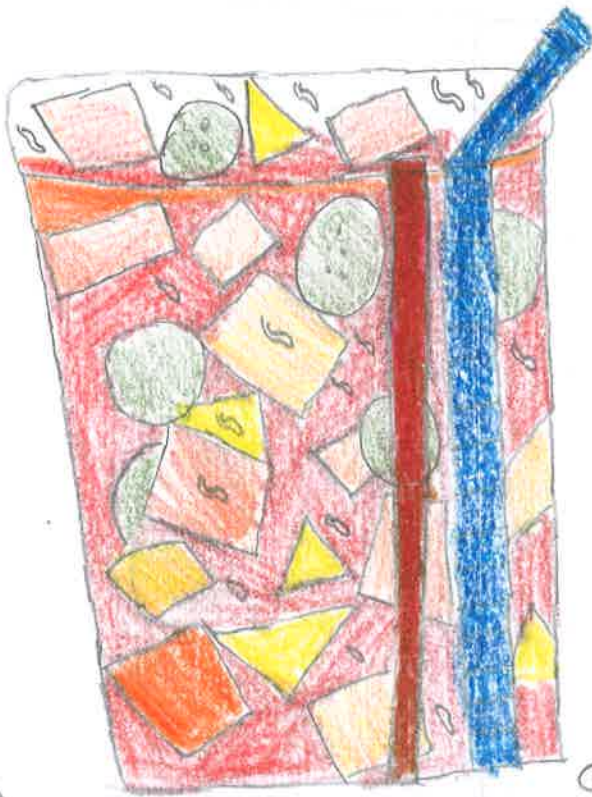
tablespoons of on each crepe. Roll up. combine topping

Bonne Petit!!



Beverages

Meal Worm Neda



RECIPE: Mealworm Neadá

FROM: Annette Go Morelos



INGREDIENTS: 2 cups mangoes - frozen
1 1/2 cups mango nectar 2 cups of ice cubes
1 mango, peeled and diced 1 lime
4 tablespoons chamoy 2 teaspoons tajín
4 teaspoons mealworms

DIRECTIONS: 1. Place frozen mango,
mango nectar, and ice into a blender
and blend until smooth.

2. Juice half of a lime.

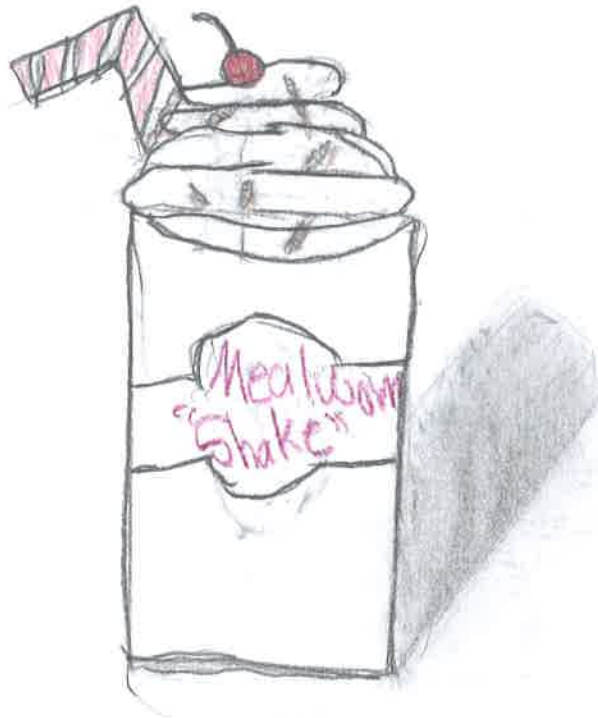
3. Add 1-2 tablespoons of chamoy.

4. Add 1 teaspoon of tajín.

5. Add a tamarindo stick

6. Now add extra topping (by choice)

Italia Alvarik



RECIPE: Strawberry Milkshake

FROM: Italia Alvarez



INGREDIENTS:

$\frac{1}{3}$ cup of milk

$\frac{1}{2}$ cups of ice cream Mix-ins (fruit)

$\frac{1}{4}$ cups of blended A blender

Mealworms 1 tablespoon of

Strawberry preserve

DIRECTIONS: Combine the
ingredients. Pour the milk first.

If the ice cream is hard before
you scoop it, then add more

milk. $\frac{1}{2}$ cup of frozen strawberries.

Pour 1 tablespoon of strawberry

preserves. Add the rest of your

adding. Blend it all. Enjoy!